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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,937	09/30/2003	Evon Llewellyn Crooks	030627/267415	2368
826	7590	01/04/2008	EXAMINER	
ALSTON & BIRD LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000			FELTON, MICHAEL, J	
			ART UNIT	PAPER NUMBER
			1791	
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			01/04/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/675,937	Applicant(s) CROOKS ET AL.	
	Examiner Michael J. Felton	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 22-25 and 29-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21, 26-28 and 38-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/2007 has been entered.

Response to Amendment

2. Claims 38-42 have been added. Claims 22-25 and 29-37 are withdrawn. Claims 1-3 have been amended, and have overcome a prior 35 U.S.C. 112 rejection.

Response to Arguments

3. Applicant's arguments, see page 11 of Remarks, filed 10/31/2007, with respect to the rejection(s) of claim(s) 1-21 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Schneider (US 5,979,459).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 2, 3, 5-17, 19, 20, 21, 26-28, and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Litchfield et al. (US 3,079,926) in view of Noznick et al. (US 3,279,476), Keith II (US 3,251,365), Eichel (US 3,459,194), and Schneider (US 5,979,459). Litchfield et al. disclose a multi-component cigarette filter that has two conventional filter plugs, a chamber in between them that is split into two compartments by a semi-permeable barrier (made of paper) with each compartment containing absorbing material. Although Litchfield et al. disclose the structure of the instant application, they do not disclose the same materials; fibrous tow (cellulose acetate) for the conventional filter plugs, granular absorbents such as activated carbon, strong or weak base ion exchange resins, etc. Litchfield et al. also do not indicate that the first

fibrous filter material has a greater particulate removal efficiency than the second section of filter material.

However, Keith II, discloses that cellulose acetate filters do not removal all the harmful constituents of tobacco smoke (col. 2, 15-17). One solution disclosed is to use "well-known absorbents such as activated charcoal, alumina, natural and synthetic clays and silica gel" (col. 2, 23-30), and that these materials can be segregated from the cellulose acetate filter (col. 2, 70-72; col. 3, 1-5). Particle sizes are also disclosed as being between 8 and 50 mesh. Keith II also discloses a structure using two conventional filter plugs and forming a cavity between them, and the filter plugs can be made from plasticized cellulose acetate (col. 4, 7-39).

Noznick et al. disclose that several granular filtering agents are convention in the art, and include activated carbon, silica gel, ion exchange resins, and anion exchange resins (col. 2, 23-41).

Schneider discloses a filter with two filter plugs and a chamber comprising selectively filtering material, similar to the structure of Litchfield et al. (Schneider, table 1). The first filter plug of Schneider is made of cellulose acetate with a denier per filament of 2.1 or less (col. 2, 39-44). The second filter can be made of cellulose acetate tow with a denier per filament of 8 with a resistance to draw of less than 20mm of water column (col. 2, 45-49). Another embodiment is shown in figure 2, with a first filter plug (26) with a denier per filament of 2.1 adjacent to the tobacco, followed by a coaxial filter segment, also made of cellulose acetate tow, with a minimum denier pre filament of 3 (example 2). In each case, Schneider clearly shows the use of a first filter

material with lower weight per unit length (lower denier per fiber, between 1.8 and 2.5 denier per fiber) than the second filter material (between 3.0 and 10 denier per fiber).

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute the conventional materials of Keith II and Noznick in the cigarette filter structure of Litchfield. The motivation to do so would have been to use the more effective modern materials (cellulose acetate, activated carbon, and ion exchange resins) in place of the materials used by Litchfield (paper, granulized animal lung). In addition, Eichel provides motivation for using weak and strong base anionic exchange resins to filter tobacco smoke (col. 3, 31-60).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teaching of cellulose acetate filter materials disclosed by Schneider with the inventions of Litchfield et al, Keith II, and Noznick, because they are analogous art and Schneider discloses a useful way to ventilate a multi segment filter. Schneider's optimized ventilation is a motivation for using filters of different denier.

In reference to claims 2 and 3, it would have been obvious to reverse the order of the absorbent and the ion exchange resins, since it has been held that mere reversal of the essential working parts of a device involves only routines skill in the art. *In re Einstein*, 8 USPQ 167.

In reference to claims 7-15, it would have been obvious to optimize the length of each filter component to produce a filter suitable for attachment to a cigarette, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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In addition, Eichel discloses a cigarette filter with a length of 38 mm, and that filters for cigarettes are typically 1:3 to 1:2 in relation to the length of the tobacco rod (col. 4, 61-70).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Litchfield et al. (US 3,079,926), Noznick et al. (US 3,279,476), Keith II (US 3,251,365), Eichel (US 3,459,194) and Schneider (US 5,979,459) as applied to claim 1 above, and further in view of the *Kirk-Othmer Encyclopedia of Chemical Technology*, John Wiley & Sons, Inc., 2001, vol. 14, page 12. The references used in the rejection of claim 1 do not disclose that the ion exchange resin is in granular form. However, as described in the *Kirk-Othmer Encyclopedia of Chemical Technology*, ion-exchange resins are typically made in granular form. "With few exceptions, resins are supplied as small, round beads..."

It would have been obvious to one of ordinary skill in the art at the time of invention to use ion exchange resins in their granular form because they are typically produced in granular form.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Litchfield et al. (US 3,079,926), Noznick et al. (US 3,279,476), Keith II (US 3,251,365), Eichel (US 3,459,194), and Schneider (US 5,979,459) as applied to claim 1 above, and further in view of Frund (US 5,714,126). The references used in claim 1 do not disclose the

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activity of the activated carbon. However, Frund discloses using activated carbon to remove harmful gasses, with an activity of at least 95 Carbon Tetrachloride Activity (col. 2, line 6).

It would have been obvious to one of ordinary skill in the art at the time of invention to have used carbon with sufficient activity, as disclosed by Frund, to achieve removal of harmful gasses in the cigarette smoke.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Felton whose telephone number is 571-272-4805. The examiner can normally be reached on Monday to Friday, 7:30 AM to 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJF



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